

FIG. 1

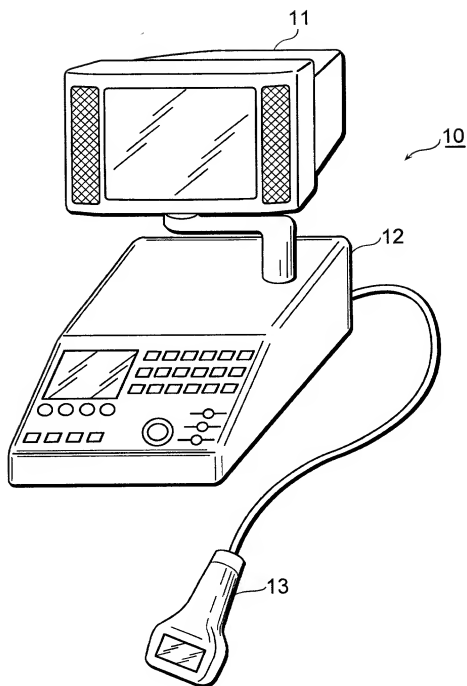


FIG. 2

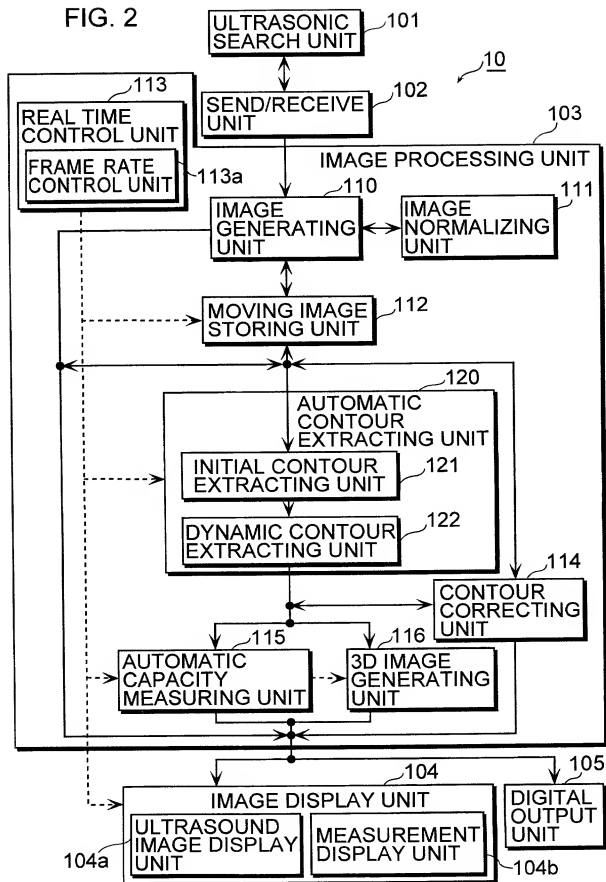


FIG. 3A

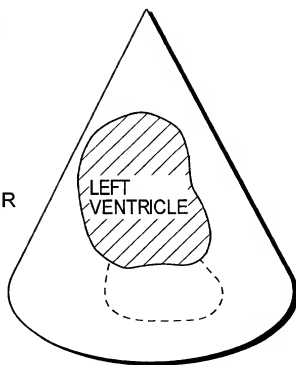
TWO
CHAMBER
VIEW

FIG. 3B

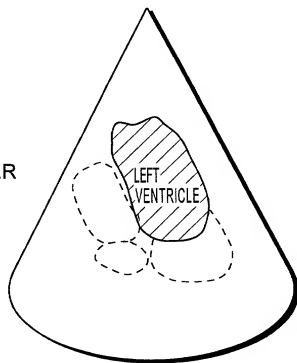
FOUR
CHAMBER
VIEW

FIG. 4

SINGLE PLANE AREA LENGTH METHOD

MAJOR AXIS "h", CROSS-SECTIONAL AREA "A"



$$\text{VOLUME "V"} = 8A^2/3\pi h$$

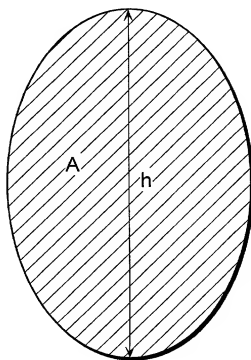


FIG. 5

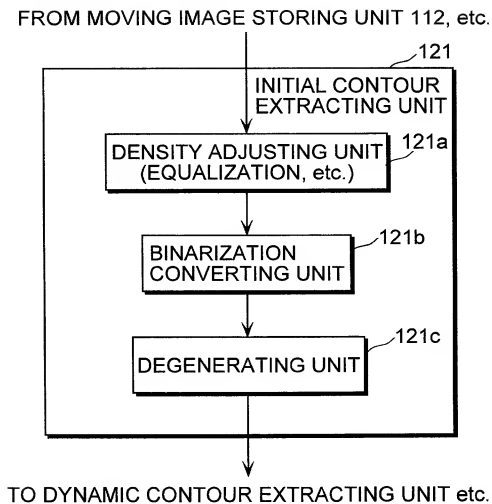


FIG. 6A

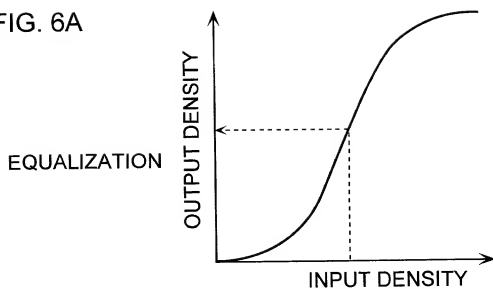


FIG. 6B

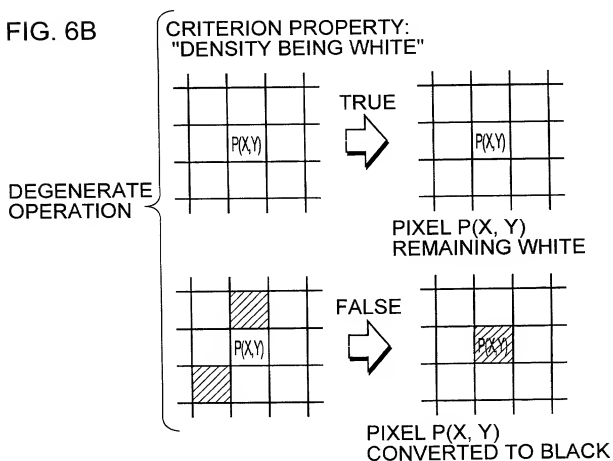
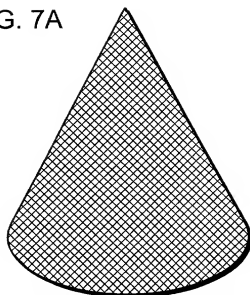
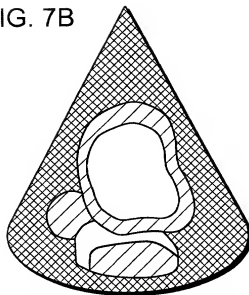


FIG. 7A



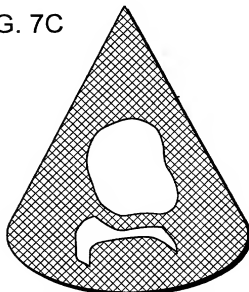
BEFORE EQUALIZATION

FIG. 7B



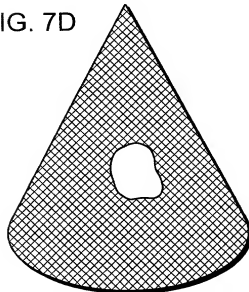
AFTER EQUALIZATION

FIG. 7C



AFTER BINARIZATION
CONVERSION

FIG. 7D



AFTER DEGENERATE
OPERATION

FIG. 8A

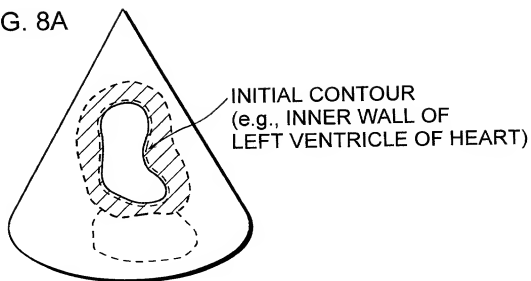


FIG. 8B1

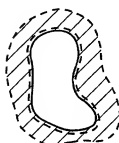


FIG. 8B2



FIG. 8B3

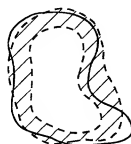


FIG. 8B4

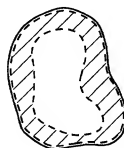


FIG. 9A

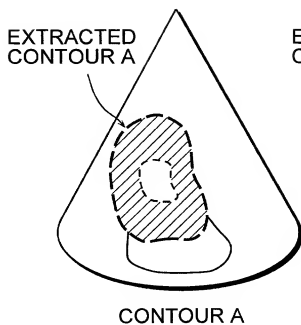


FIG. 9B

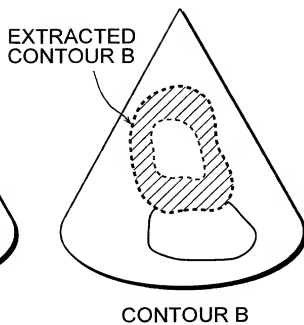


FIG. 9C

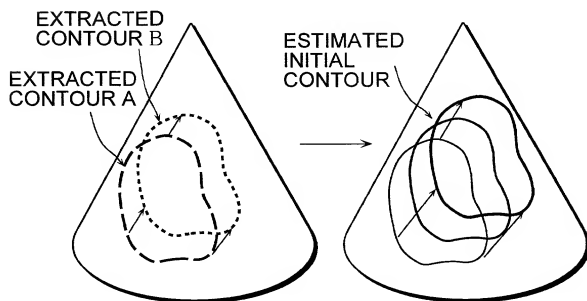


FIG. 10

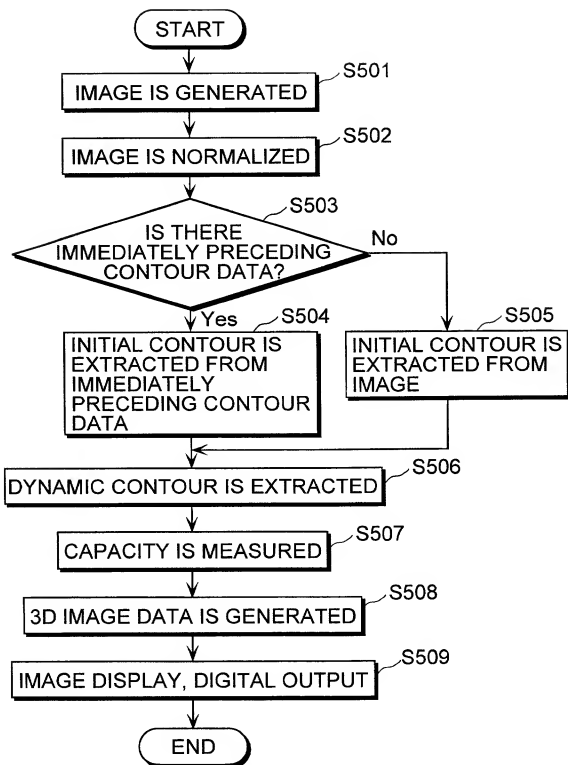


FIG. 11

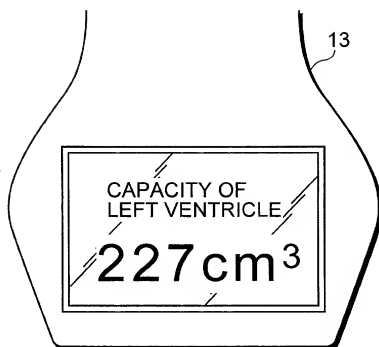


FIG. 12

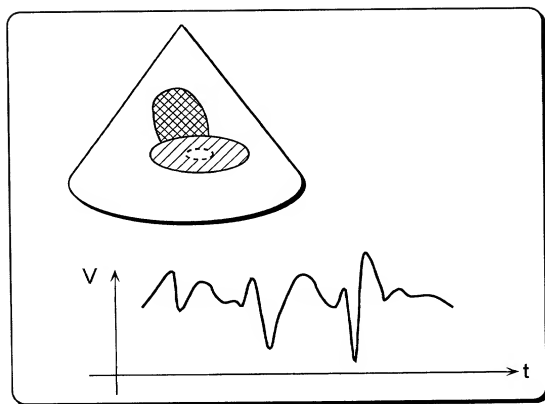


FIG. 13

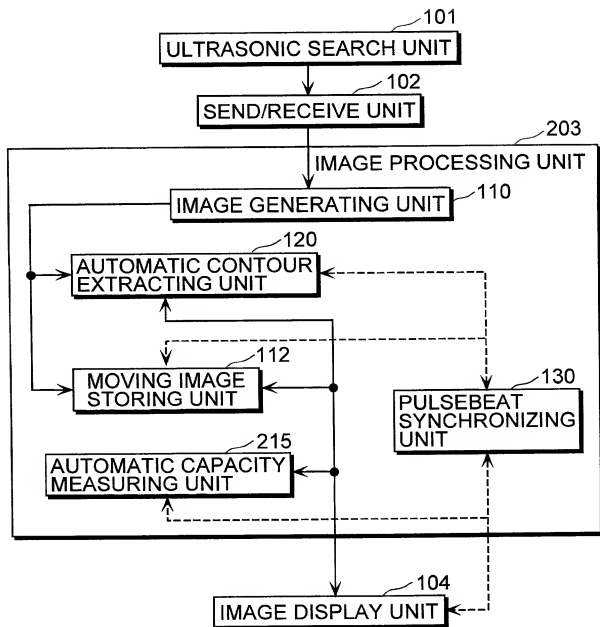


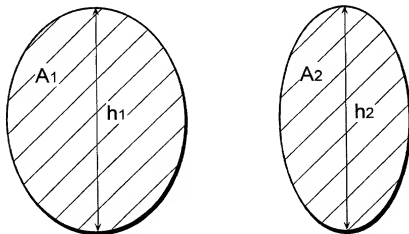
FIG. 14

BIPLANE AREA LENGTH METHOD

MAJOR AXES h_1 AND h_2 , OF WHICH LONGER ONE IS h .
CROSS-SECTIONAL AREAS A_1 AND A_2



$$\text{VOLUME } V = 8A_1 A_2 / 3 \pi h$$



SECTIONS THAT SHARE SAME
AXIS AND ARE ORTHOGONAL TO EACH OTHER

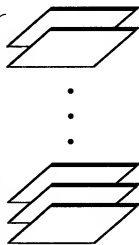
FIG. 15A



FIG. 15B



TWO-CHAMBER IMAGE
/ITS CONTOUR DATA



FOUR-CHAMBER IMAGE
/ITS CONTOUR DATA

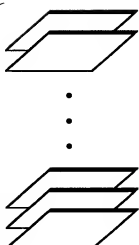


FIG. 15C

EXTRACT DATA
CORRESPONDING
TO SAME PHASE



FIG. 15D

COMPOSITE IMAGE DISPLAY
/CAPACITY MEASURING

FIG. 16

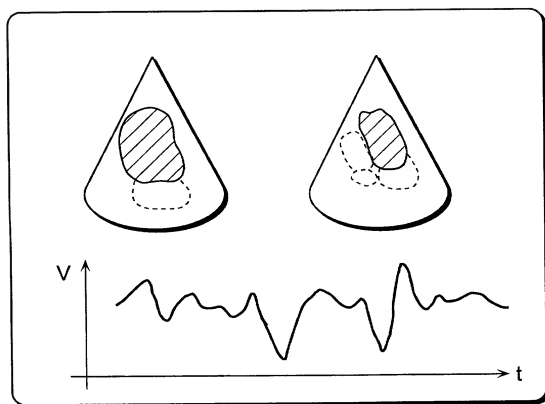


FIG. 17A

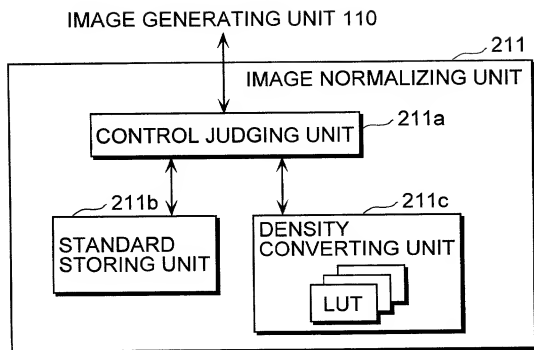


FIG. 17B

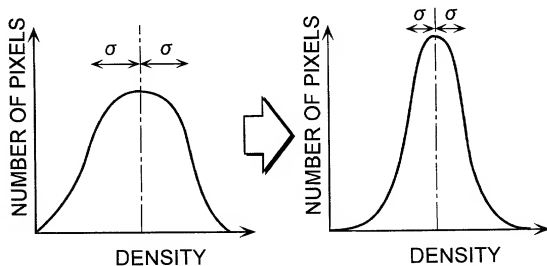


FIG. 18

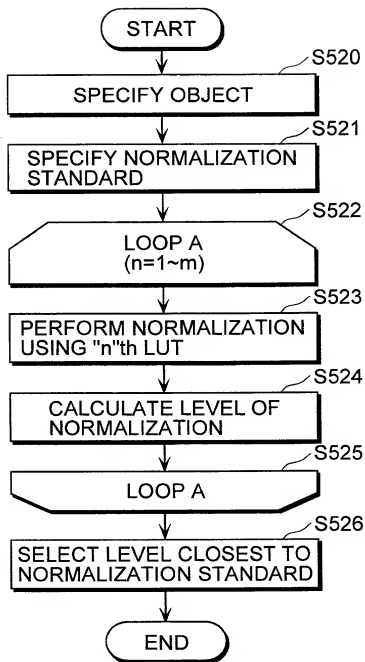
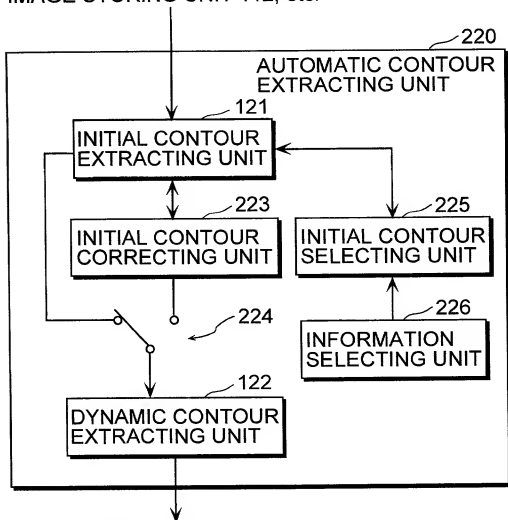


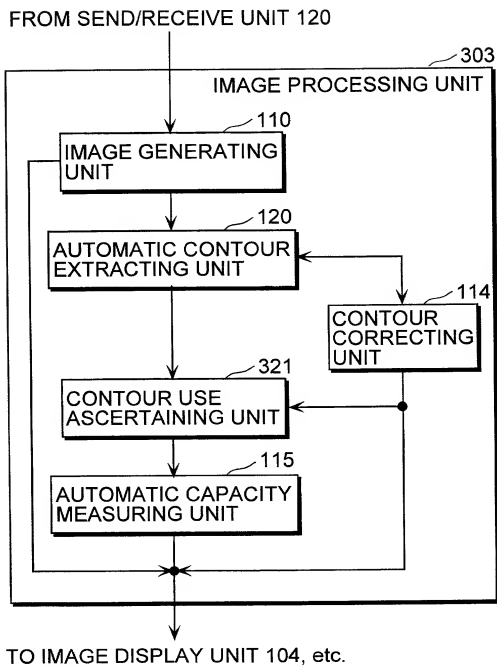
FIG. 19

FROM IMAGE GENERATING UNIT 110, MOVING
IMAGE STORING UNIT 112, etc.



TO AUTOMATIC CAPACITY MEASURING UNIT 115,
3D IMAGE GENERATING UNIT 116, etc.

FIG. 20



10058316-013002

FIG. 21

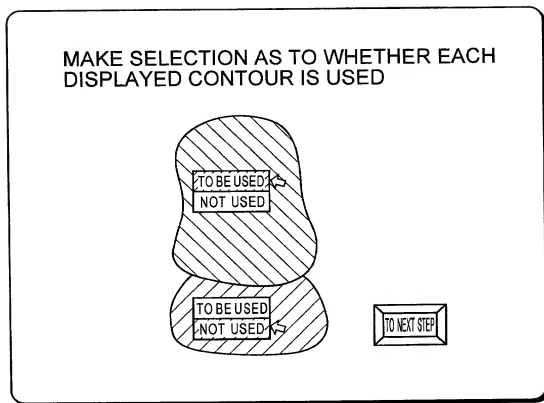


FIG. 22

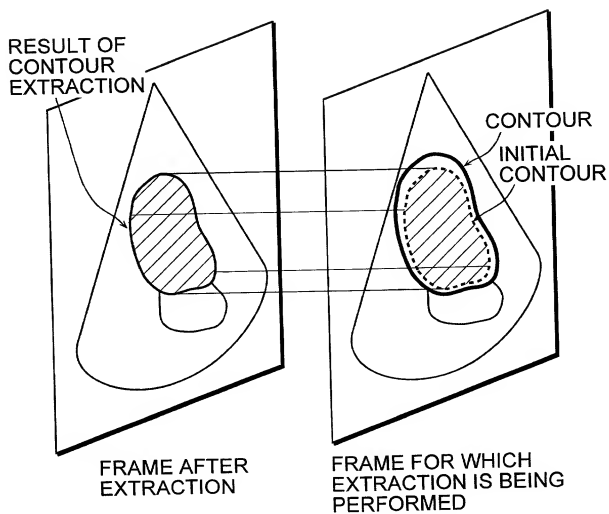
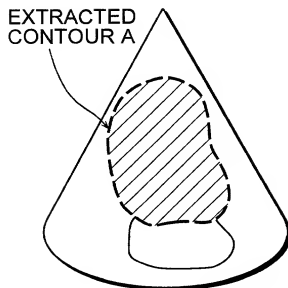
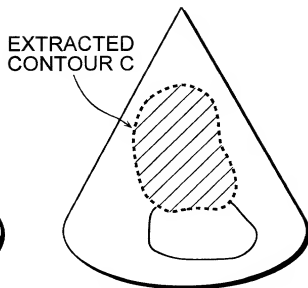


FIG. 23A



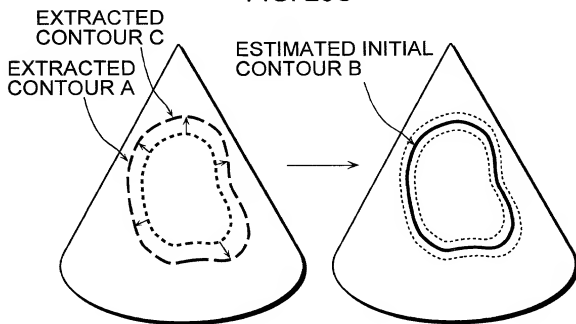
EXTRACTION RESULT A

FIG. 23B



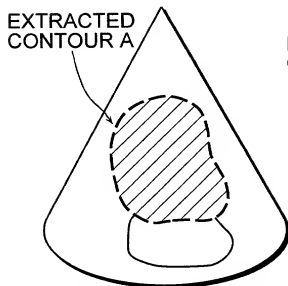
EXTRACTION RESULT C

FIG. 23C



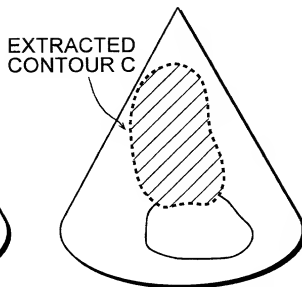
EXAMPLE OF INITIAL CONTOUR
SETTING BY INTERPOLATION

FIG. 24A



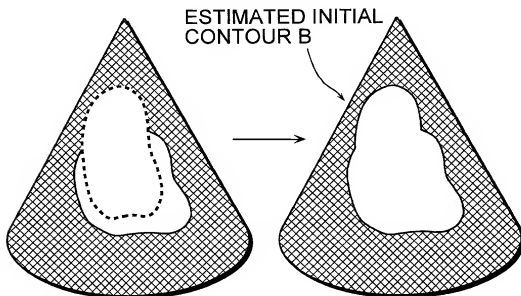
EXTRACTION RESULT A

FIG. 24B



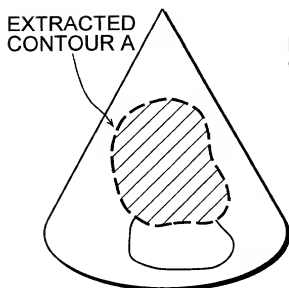
EXTRACTION RESULT C

FIG. 24C



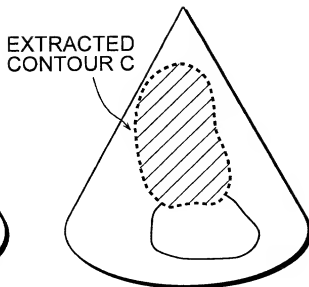
EXAMPLE OF INITIAL CONTOUR SETTING BY
BINARIZATION CONVERSION/OR-OPERATION

FIG. 25A



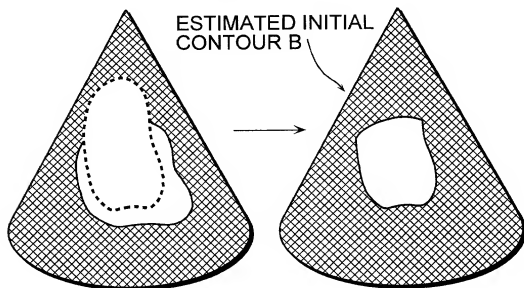
EXTRACTION RESULT A

FIG. 25B



EXTRACTION RESULT C

FIG. 25C



EXAMPLE OF INITIAL CONTOUR SETTING BY
BINARIZATION CONVERSION/AND-OPERATION

FIG. 26

SIMPSON METHOD

RADIUS A_i (OR CROSS-SECTIONAL AREA S_i)
OF EACH SLICE

INTERVAL h BETWEEN TWO SLICES



$$\begin{aligned}\text{VOLUME } V &= \sum S_i \times h \\ &= \sum (\pi \times A_i^2/4) \times h\end{aligned}$$

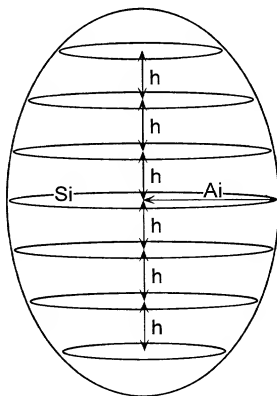


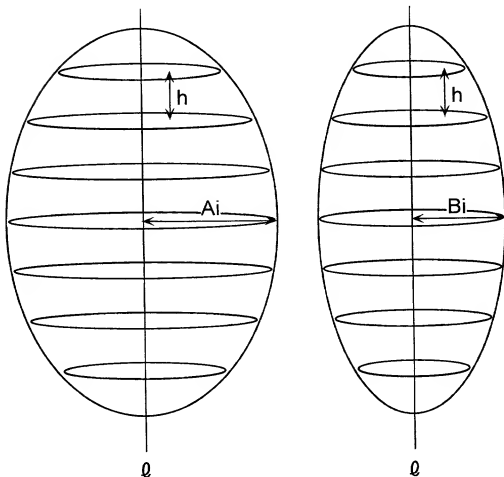
FIG. 27

MODIFIED SIMPSON METHOD

EACH RADIUS A_i/B_i OF TWO CROSS SECTIONS
THAT ARE ORTHOGONAL TO EACH OTHER
INTERVAL " h " BETWEEN SLICES



$$\text{VOLUME "V"} = \sum A_i B_i \times h \pi$$



CROSS SECTIONS THAT SHARE SAME
AXIS " θ " AND ARE ORTHOGONAL TO EACH OTHER

FIG. 28

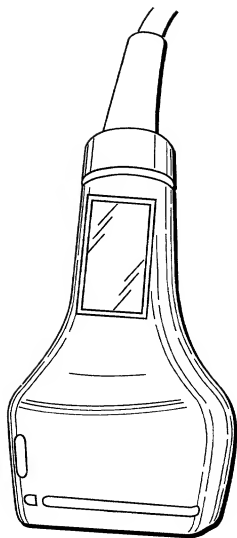
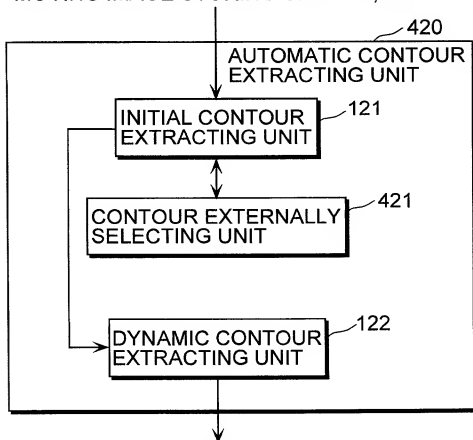


FIG. 29

FROM IMAGE GENERATING UNIT 110,
MOVING IMAGE STORING UNIT 112, etc.



TO AUTOMATIC CAPACITY MEASURING UNIT 115,
3D IMAGE GENERATING UNIT 116, etc.

FIG. 30

